

Education Management Information System Role in Educational Development: A Case Study of UNRWA Schools in Lebanon

Khalil Nabil Khalil, Mohammad Youssef Farhat

Department of Business Information Technology, Jinan University, Lebanon

ABSTRACT

This study purposes to determine the impact of Education Management Information System variables such as system efficiency, service efficiency, information efficiency, and technical efficiency on the educational system in UNRWA schools in Lebanon. The authors employed an analytical descriptive approach by creating a questionnaire in Google Forms and disseminating it to the study sample participants via the WhatsApp application for data collection. The survey includes 1440 professional female and male teachers who demonstrated expertise in the 2022 academic year. However, the author only collected 128 questionnaires from teachers, which were studied and analyzed by the SPSS application. The findings of this analysis show that teachers have a good level of awareness of the factors of the information management system in general. The findings also revealed a statistically significant association between education information management system parameters and educational system development.

KEYWORDS: Management information system, education, technical means, services, efficiency, educational development, UNRWA

How to cite this paper: Khalil Nabil Khalil | Mohammad Youssef Farhat "Education Management Information System Role in Educational Development: A Case Study of UNRWA Schools in Lebanon" Published in International Journal of Trend in Scientific Research and Development (ijtsrd), ISSN: 2456-6470, Volume-7 | Issue-3, June 2023, pp.432-442, URL: www.ijtsrd.com/papers/ijtsrd57387.pdf



Copyright © 2023 by author (s) and International Journal of Trend in Scientific Research and Development Journal. This is an Open Access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0) (<http://creativecommons.org/licenses/by/4.0>)



I. INTRODUCTION

In the twenty-first century, information technology has become one of the most important pillars on which societies are based (Chu, et al., 2017). Technological development has brought about a remarkable change in all areas of life. Thus, its existence has become an urgent necessity in many fields such as education, health, commerce, and others (Byun, et al., 2018). The inclusion of recent technology tools in the educational field has led to radical changes. Many institutions of various specialties compete to include technology in their systems since it influences students' success in basic learning (Rakic, et al., 2020).

The integration of intelligent systems and the Internet has recently resulted in visible technological development, which influences the development and expansion of countries. Researchers face fierce competition as a result of this integration. The educational sector must be aware of the role that technology plays at the administrative level in terms of providing services and gaining the necessary competitive advantage (Karakose, et al., 2021).

Technology is an effective and vital tool for creating, saving, sharing, and benefiting from information in the future in the workplace (Dwivedi, et al., 2020). Institutions cannot continue and grow without significant technological support (Herold, 2016). As a result of this scientific and technical advancement, it has become important to employ information technology in daily scientific and educational work and to abandon old approaches in the educational sectors.

Technological advancement has an impact on the educational system by introducing technology into the educational classroom for the benefit of the educational process, hence requiring the incorporation of information technology within institutions (Nikou & Aavakare, 2021). As a result, the purpose of the school administration has shifted from managing the school's business to holding educational and awareness workshops to explain the benefits of using information technology to manage the educational process, which includes students, teachers, activities, and curriculums.

Consequently, UNRWA, an international organization, assists approximately five million registered refugees across five countries: Lebanon, Syria, Jordan, the West Bank, and the Gaza Strip. It offers a wide range of services to refugees, including medical, social, and educational services (Michael & Hatuel-Radoshitzky, 2020). The Agency (UNRWA) places a premium on educational activities. It serves a large number of Middle Eastern schools. As a result, the organization requires an electronic system that connects the five countries through a single database to accomplish educational achievement.

UNRWA incorporated the electronic system (EMIS) into its education program for five countries, including Lebanon, in 2016 (El Ahmad & Kawtharani, 2022). Data management was regarded as one of its most essential elements, assisting in the monitoring and evaluation of school progress for 69 schools and around 32,350 children enrolled in these institutions. The French government and the Swiss Agency for Development and Cooperation are funding this program (UNRWA, 2022). UNRWA's previous administrative structure was ineffective since it was paper-based.

Following that, UNRWA has always sought to build technical solutions to improve the educational administration process. It recently incorporated the information and communication technology plan for education, which is part of the UNRWA-wide digital transformation strategy coordinated by the Information Technology Management Department. Attendance studies were suspended in 2021 owing to the COVID-19 pandemic; accordingly, the agency devised the "UNRWA" platform for digital learning (Moghli & Shuayb, 2020), where the approach prioritizes securing four enabling factors:

- Improve access to devices,
- Enhance communication,
- Enhance resources, and
- Develop capacity-building in technology for ensuring optimal support for learning, teaching, and administrating.

In December 2021, UNRWA announced a new partnership and cooperation with Microsoft, where work is currently underway to develop a learning management system based on Microsoft Teams within the framework of the strategy's third pillar. This allowed for better communication between students and teachers, the development of a collaborative online learning environment, and the development of essential skills such as media and information literacy (Salman, et al., 2022).

In this study, the author aims to examine the impact of EMIS on the educational system development in

UNRWA schools in Lebanon. This paper is divided into six sections. Section II describes the management information system adopted by the UNRWA agency. Section III illustrates the research questions. Section IV illustrates the study's hypotheses and methodology. Section V depicts the study sample and the results gained from it, followed by a significant discussion. Finally, Section VI brought this study to a close.

II. Background

The world is witnessing a massive information revolution in development and technology in the twenty-first century, which has resulted in a radical change in the management of organizational structures and work (Rayward, 2014). To process data and distribute information, the information system devotes all available energies to personnel, procedures, means, and operations. The word "information systems" refers to the gathering, storage, organization, and processing of data. Administrative, geographic, and many other types of information systems are examples.

Management Information System (MIS) is defined as an application of an advanced administrative technological nature based on information technology, computer science, and management (Laudon & Laudon, 2013). It handled tasks to create administrative systems that use technology to help organizational decision-making, coordination, control, analysis, and visualization of information. The consistency of roles across the system's components leads to data being processed, converted into information, and then stored and used later in a systematic manner that aids the process of making future decisions.

Functions of Management Information Systems

Collecting data and converting it into information is one of the most basic functions of the information system. It enables the user to retrieve the information at any time (Akter, et al., 2022). In addition, MIS has several functions, listed as follows:

- Providing multiple sources for obtaining data.
- Ensuring the accuracy and validity of the data.
- Organizing data using tabulation and coding operations in conducting administrative operations.
- Storing data using multiple and different storage media.
- Performing various arithmetic and logical operations.
- Retrieving and presenting information so that it can be used.
- Producing information to benefit from it in making decisions.

Characteristics of Management Information Systems

Management information systems have several characteristics mentioned by the researchers (Benbasat). They listed it in four main characteristics:

➤ Inclusivity:

MIS should include all functions for which information and data were collected, regardless of the magnitude of this information, as long as the desired goal is met (Rossi, et al., 2019). This information may be brief or insufficient, but it is comprehensive and capable of reaching the goals and objectives of beneficiaries at all lower and higher levels, depending on the nature of the problems it addresses.

➤ Reliability:

Reliability means that the system can fully meet the needs of the beneficiaries, in addition to the ability to check or search for sources of information and present them in a consistent and organized manner so that the beneficiaries can benefit from the outputs in completing the required work and making appropriate decisions about them (Tworek, 2018).

➤ Timing:

This feature is regarded as one of the most significant aspects of the information system since it is critical for users who want to acquire information quickly and promptly, as well as make judgments based on information that is prone to failure (Ismagilova, et al., 2019). This feature gives companies and institutions a competitive advantage in achieving the highest level of beneficiary satisfaction.

➤ Precision:

Precision means that the information is free of flaws or prejudice, which produces a flaw in making the proper decisions when the information is inaccurate (Huang, 2022). Previous study has shown that good and accurate information leads to sound administrative decisions, thus there is a growing interest in using information technology to gather more accurate and error-free data.

UNRWA Educational Management Information System (EMIS)

The EMIS system was built within the scope of UNRWA education reform due to the importance of the incoming data that the Education Department benefits from in the planning, evaluation, and follow-up process (Abu-Ghaida & Silva, 2021). This happened after the agency invested in school reform and research into how to make it more supportive of its policy.

The system's structure is divided into three parts: students, personnel, and school buildings. Each component is divided into multiple sub-sections that cover all facets of the educational process.

The system was established in six steps to reach the application (Anderson, 2020), which are as follows:

- Analyzing all education procedures connected to students, teachers, and school buildings.
- Interviewing people from all departments (Education, Health, Social Services, Human Resources, Engineering, and People with Special Needs).
- Creating the system with the "asp.net-mvc" programming language.
- Educating all educational personnel on how to use the system.
- In some schools, implementing the system in each operational area.
- Using and implementing the technology throughout all UNRWA operations in 2016.

III. Research Questions

The study seeks to achieve the objectives through the following main question:

1. What is the role of education management information system factors in developing the education system in UNRWA in Lebanon?

Accordingly, several sub-questions emerged from it, namely:

1. What are the perceptions of the teaching staff about (system efficiency, service efficiency, technical means efficiency, and information efficiency) of the education information management system in UNRWA schools in Lebanon?
2. What are the implications of the education information management system factors on the development of the educational system?
3. What is the result of the contribution of the education information management system factors to the performance of the educational staff?
4. What is the result of the contribution of the education information management system factors in facilitating administrative and educational matters in schools?

IV. Research Hypotheses and Methodology

This study aims to examine the impact of the Education Management Information System on the Development of the Educational System in UNRWA Schools in Lebanon. Therefore, the following variables are adopted by the authors (the conceptual framework is illustrated in Figure 1):

- The dependent variable: the development of the educational system
- The independent variable: factors of the education information management system represented by the following dimensions: (system efficiency, information efficiency, service efficiency, and technical means efficiency).

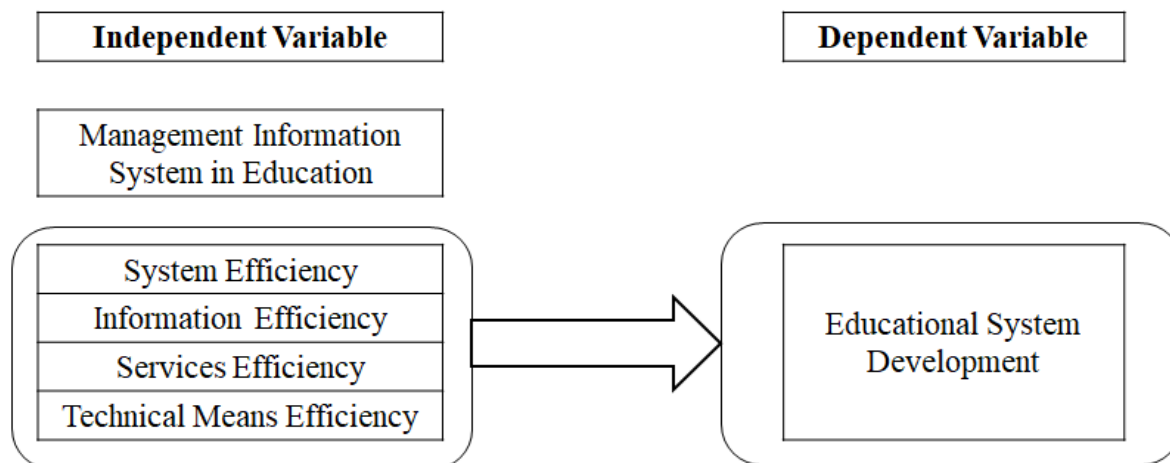


Figure 1: The conceptual framework shows the management information system in education on UNRWA educational system development.

Based on Figure 1, the primary hypothesis is articulated:

Primary Hypotheses

H0: There is a statistically significant impact at level ($\alpha < 0.05$) between the education information management system and the development of the educational system in UNRWA schools in Lebanon.

From H0, the following sub-hypotheses are derived:

Sub-Hypotheses

- H01: There is a statistically significant impact of the efficiency of the system on the educational system development in UNRWA schools in Lebanon.
- H02: There is a statistically significant impact of information efficiency on the educational system development in UNRWA schools in Lebanon.
- H03: There is a statistically significant impact of the services' efficiency on the educational system development in UNRWA schools in Lebanon.
- H04: There is a statistically significant impact of technical means efficiency on the educational system development in UNRWA schools in Lebanon.

An analytical descriptive methodology was used to investigate these hypotheses. To reflect all variables in the investigation, a questionnaire of 46 items was created (see Table 1).

Table 1: The questionnaire structure, including variables, dimensions, and number of items

| Variable | Dimension | Number of items |
|-----------------------------|--------------------------------|-----------------|
| Personal Information | | 5 |
| Dependent | Educational System Development | 8 |
| Independent | System Efficiency | 11 |
| | Information Efficiency | 9 |
| | Services Efficiency | 8 |
| | Technical Means Efficiency | 4 |

This questionnaire follows the five-point Likert scale (Jebb, et al., 2021), employed with weights shown in Table 2.

Table 2: Representation of questionnaire answers' weights

| Category | Strongly Disagree (SD) | Disagree (D) | Neutral (N) | Agree (A) | Strongly Agree (SA) |
|---------------|------------------------|--------------|-------------|-----------|---------------------|
| Degree | 1 | 2 | 3 | 4 | 5 |

V. Results and Discussion

The 128 collected answers for the questionnaire used in this study are analyzed using the SPSS program in this part (Watkins, 2021). As a result, the sample is displayed, followed by a descriptive analysis of the responses. Finally, the hypotheses are investigated.

Study Sample

The study population consisted of Lebanese UNRWA schools' teachers whose number in the academic year (2021-2022) was 1440 male and female teachers. As for the tool used in the study of this community, it is a

comprehensive survey through the questionnaire that was designed using the (Google Form) application and distributed via the (Whatsapp) application to all teachers representing the study community. A convenience sample of 128 teachers was selected and their answers were retrieved and subjected to interpretation.

Table 3 shows a description of the sample according to sex, age, education, region, and experience.

Table 3: Study sample description, based on gender, age, educational level, years of experience, and region

| Variant | Class | Ratio (%) |
|------------------------|-------------------------|-----------|
| Gender | Male | 46.1 |
| | Female | 53.9 |
| Age | Younger than 30 years | 4.7 |
| | Between 30 and 40 years | 34.4 |
| | Between 40 and 50 years | 39.8 |
| | Older than 50 years | 21.1 |
| Education Level | Technical | 3.9 |
| | Bachelor | 75 |
| | Master | 20.3 |
| | Doctorate | 0.8 |
| Experience | Less than 5 years | 2.3 |
| | Between 5 and 9 years | 13.3 |
| | Between 10 and 15 years | 25 |
| | Greater than 15 years | 59.4 |
| Region | South | 62.5 |
| | Beirut | 8.6 |
| | North | 8.6 |
| | Bekaa | 20.3 |

According to Table 3, there is a convergence between the number of females and the number of males since UNRWA's employment policy promotes equal opportunity without discriminating against gender in appointments for males and females. The number of female teachers has risen to 69, while the number of male teachers has fallen to 59.

Furthermore, 4.7% of respondents are under the age of 30, 34.4% are between the ages of 30 and 39, 39.8% are between the ages of 40 and 49, and 21.1% are 50 and older.

Furthermore, 3.9% have an institute, 75% have a bachelor's degree, 20.3% have a master's degree, and 0.8% have a doctorate.

In addition, 2.3% of the study sample worked as teachers for less than 5 years, 13.3% worked as teachers for 5 to less than 9 years, 25% worked as teachers for 10 to less than 15 years, and 59.4% worked as teachers for more than 15 years.

Finally, 62.5% of the study sample works in the south, while 8.6% work in Beirut, 8.6% work in the north, and 20.3% work in the east (Bekaa, Baalbek), indicating that there are a large number of people working in the south because it has the most teachers, schools, and high schools.

Cronbach Alpha and KMO Test

Table 4 displays the Cronbach alpha values for each study dimension, and the corresponding KMO test values (Okagbue, et al., 2021).

Table 4: Cronbach alpha value with the constancy

| Variable | Dimension | Cronbach Alpha | KMO |
|-------------|--------------------------------|----------------|-------|
| Dependent | Educational System Development | 0.889 | 0.942 |
| Independent | System Efficiency | 0.917 | 0.957 |
| | Information Efficiency | 0.911 | 0.954 |
| | Services Efficiency | 0.899 | 0.948 |
| | Technical Means Efficiency | 0.806 | 0.897 |

Table 4 shows that the Cronbach alpha coefficient is high for each dimension, ranging between two values (0.806, 0.917), and the value of all questionnaire items amounted to (0.968). The KMO value is also high, ranging between (0.897, 0.957). All questionnaire items got a value of (0.983), indicating that the questionnaire's stability is strong and statistically significant.

Descriptive Analysis

As the five Likert scale was adopted in this study, the range between maximum and minimum value is 4. Therefore the cell length can be given using Table 5.

Table 5: The results of the criterion approved in the study

| Cell Length | Consistency Degree |
|-------------|--------------------|
| 1.00 – 1.80 | Strongly disagree |
| 1.81 – 2.60 | Disagree |
| 2.61 – 3.40 | Neutral |
| 3.41 – 4.20 | Agree |
| 4.21 – 5 | Strongly agree |

Independent Variables - Mean and Standard Deviation

Table 6 shows the mean and standard deviation of the independent variables within its four categories (efficiency of the system, information, services, and technical means).

Table 6: The mean and standard deviation of the variables

| Variable | Item | Mean | Standard deviation |
|-------------------------------|--|------|--------------------|
| System Efficiency | The system is easy to use. | 4.10 | 0.708 |
| | The system is easy to learn. | 4.02 | 0.778 |
| | The system is flexible. | 3.72 | 0.869 |
| | The system handles the data accurately. | 3.93 | 0.862 |
| | The system connects data with each other. | 3.90 | 0.812 |
| | The content of the system database is sufficient. | 3.61 | 0.872 |
| | The system allows changing display properties as desired by the user. | 3.47 | 0.947 |
| | The system allows integration with other IT systems such as HR systems and other departments. | 3.55 | 0.921 |
| | The system meets the needs of users. | 3.83 | 0.775 |
| | The system is considered reliable. | 3.74 | 0.825 |
| | The system is efficient. | 3.86 | 0.761 |
| Information Efficiency | The system provides users with instant information. | 4.04 | 0.767 |
| | System information is understandable and uncomplicated. | 3.99 | 0.682 |
| | The information provided by the system is highly valuable. | 3.76 | 0.858 |
| | System information is concise. | 3.84 | 0.718 |
| | System information is appropriate for what it was designed for. | 3.88 | 0.753 |
| | The information in the system is easily accessible. | 3.94 | 0.729 |
| | The system presents information in a form that can be easily utilized. | 3.94 | 0.729 |
| | The required information can be obtained from the system at any time and any place. | 3.73 | 0.945 |
| | The information in the system is constantly updated. | 3.80 | 0.797 |
| Services Efficiency | The interfaces of the system are clear and easy to work with. | 3.97 | 0.675 |
| | The system has visually appealing features in its design. | 3.48 | 0.878 |
| | The system correctly fulfils the requests of the users. | 3.78 | 0.783 |
| | System administrators provide users with the service in a timely manner. | 3.61 | 0.872 |
| | System administrators can be relied upon. | 3.65 | 0.875 |
| | System maintainers have up-to-date software and hardware. | 3.55 | 0.859 |
| | System administrators are interested in providing solutions to common problems faced by users. | 3.65 | 0.866 |
| | I feel safe in my dealings with the system administrators. | 3.65 | 0.910 |

| | | | |
|-----------------------------------|--|------|-------|
| Technical Means Efficiency | I have the resources to use the system. | 3.87 | 0.836 |
| | I have the necessary resources to use the system. | 3.79 | 0.820 |
| | The system is compatible with other systems that I use. | 3.80 | 0.754 |
| | There is a team that provides technical support service to system users. | 3.48 | 0.913 |

Table 7 represents a summary of the mean and standard deviation for all the items of the independent variables of the education management information system factors.

Table 7: Summary of the mean and standard deviation of the variables

| Variable | Mean | Standard Deviation |
|----------------------------|--------------|--------------------|
| System Efficiency | 3.79 | 0.83 |
| Information Efficiency | 3.88 | 0.775 |
| Services Efficiency | 3.66 | 0.839 |
| Technical Means Efficiency | 3.735 | 0.83 |
| EMIS Factors Total | 3.766 | 0.818 |

The mean for the item "The system is easy to use" is 4.10, which means that there is agreement among the respondents on this item. The researcher attributes this to the nature of the system, which is easy to use, in addition to the fact that all teachers received intensive training for several days on using the system during the summer vacation, i.e., before its practical application at the beginning of the year, and a guide to using the (EMIS) system was distributed to them, which facilitates the process of learning and using it.

The mean for the item "The system allows changing display properties as desired by the user" is 3.47, which means that there is agreement among the respondents. The researcher justifies this by saying that the programmer who designed the system did not provide this service, and therefore it is not possible to change the characteristics of the display by the teachers.

The mean for the field of system efficiency is 3.79, which means that there is agreement among the respondents on the items in this field. The researcher attributes the reason for this to the fact that the system provides many facilities compared to the previous system known as the standardized test management system, and in addition to that, teachers receive sufficient training to use it effectively and easily, which highlighted their approval of the efficiency of the system. These results are consistent with the results of the study (2006, Felton), which concluded that the system is easy to learn and that training plays an important role in users' satisfaction with it.

In general, it can be said that the mean for the field of "information efficiency" is equal to 3.88, and this means that there is agreement among the respondents. The researchers attributed this to the system's information's nature, comprehensiveness in all areas about students or teachers, and simplicity of use.

The arithmetic mean for the item "The interfaces of the system are clear and easy to work with" is 3.97, which means that there is agreement among the respondents. The researcher attributes this to the simplicity of the design, the clarity of the requests presented by the system interfaces, and the messages they provide to guide the user toward the correct use of the system.

The mean of the item "The system has visually appealing features in its design" is 3.48, which means that there is agreement among the respondents. Although the item received the lowest percentage of approval from the items in the field, there is good approval for it, and this is due, as the researcher believes, to the fact that the design of the site is an official design, and therefore visual effects such as animated images (GIF) are not used to draw attention, but it is satisfied with a consistent and unified color scheme.

In general, it can be said that the mean for the field of "service efficiency" is 3.66, which means that there is agreement among the respondents on the items in this field. The researcher justifies this with the real quality of the services provided by the system and the clear comparison of the system by teachers with the old systems that were used, which gives a high degree of approval in this field.

The mean for the item "I have the necessary resources to use the system" is 3.87, which means that there is agreement among the respondents. The reason for this is the good training on the system that the teachers received during the summer vacation and the availability of a manual for using the system.

The mean for the fourth item, "There is a team that provides technical support service to system users," is 3.48, and this means that there is approval by the respondents. The researcher explains this by comparing the presence

of a small number of specialists who provide technical support to the presence of a large number of teachers in schools who need technical support.

In general, it can be said that the mean for the field of "technical means efficiency" is equal to 3.735, and this means that there is agreement among the respondents on the items of this field. The researcher justifies this by pointing out that UNRWA works periodically to provide the latest equipment in schools and to provide modern computers that fully meet the requirements of the system.

Finally, The mean of all items of the EMIS efficiency factors is 3.766, which means that there is agreement among the respondents on the EMIS factor items in general. The researchers attributed this to the fact that the system has a set of features that make it gain a high degree of satisfaction among users, as it is distinguished as a system from the previous system (Standardized Tests Management System) with many additions. Perhaps the most important feature is the ease of access to the system from anywhere, as well as linking with a department of social services and health, in addition to the behavioral and health record of the student, which can be added, and a unified system for all five areas of UNRWA operations. All these features and more have made school teachers rate EMIS efficiency factors with a high approval rating.

Dependent Variable - Mean and Standard Deviation

Table 8 shows the mean and standard deviation of the dependent variable (educational system development). The values are expressed as follows:

Table 8: Descriptive statistics for the dependent variable

| Educational System Development | Mean | Standard Deviation |
|--|------|--------------------|
| The system helps teachers to complete their tasks. | 3.94 | 0.791 |
| The system helps to access accurate information. | 4.00 | 0.699 |
| The system helps in shortening the time to finish the work. | 3.85 | 0.914 |
| The system helps to raise the efficiency and effectiveness of work procedures. | 3.80 | 0.934 |
| The system helps solve the school dropout problem. | 2.99 | 0.968 |
| Attendance and absence are set for students. | 3.75 | 0.980 |
| Curricula and courses have been unified. | 3.25 | 0.922 |
| High student success rate in schools. | 3.09 | 1.094 |

The mean for the second item, "The system helps to access accurate information," is 4.00, which means that there is agreement among the respondents. Moreover, the arithmetic mean of the fifth item, "The system helps solve the school dropout problem," is 2.99. This means that there is neutrality among the respondents in this item.

In general, it can be said that the mean of the "development of the educational system" axis is 3.583, and this means that there is agreement among the respondents. The researcher attributes this to the fact that the nature of the system that teachers use requires more training and sufficient capacity to deal with it. There is no doubt that one of the foundations for the success of this system is the application of its advantages and the purpose for which it was established, for example, attendance, absence, and school dropout, which shows the continued weakness in its follow-up. Administrative matters for students.

Hypotheses Study

To test the validity of H0, the researcher used the Pearson correlation coefficient (Baak, et al., 2020) between the total score of the factors axis of education information management EMIS, and the total score of the educational system development items, represented in Table 9.

Table 9: Correlation coefficient between the factors of the Education Management Information System (EMIS) and the development of the educational system in UNRWA schools in Lebanon

| Hypothesis | Pearson Correlation Coefficient | Probability Value (Sig.) |
|------------|---------------------------------|--------------------------|
| H01 | 0.656 | **0.000 |
| H02 | 0.703 | **0.000 |
| H03 | 0.733 | **0.000 |
| H04 | 0.726 | **0.000 |
| H0 | 0.774 | **0.000 |

** Correlation is significant at the 0.01 level (2-tailed)

Table 9 shows that the correlation coefficient is equal to 0.774, and the probability value (.Sig) is equal to 0.000, which is less than the significance level of 0.05, and this indicates that there is a statistically significant relationship between the factors of the efficiency of the Education Information Management System (EMIS) and the development of the educational system in Agency schools (UNRWA) in Lebanon.

The researcher explains that the education information management system provides teachers with a wide range of information that enables them to move toward beneficial change. A teacher cannot ignore the valuable information provided by the system and stay away from change. For example, the Education Information Management System provides percentages and statistics about the average achievement of students in exams, whether monthly, quarterly, or yearly if the results are positive.

Additional Discussion and Recommendations

According to the gained results in the previous parts, There is a high degree of approval of the teachers on the axis of the factors of the (EMIS) system on the part of the educational staff in UNRWA schools, and their satisfaction was high concerning the axis of information efficiency in the first place, then the efficiency of the system secondly, and then the efficiency of the technical means, so that their satisfaction was in the lowest percentage about the efficiency of the service. However, it is remarkable that all of them were satisfied, which indicates the efficiency and effectiveness of the system in assisting them, supporting them, and enhancing their performance.

In addition, there is a high degree of approval for the development of the educational system among teachers of UNRWA schools, as the percentage of this axis reached 71.6%, which indicates the approval of the respondents, and thus a noticeable improvement and development in the educational system with more need to raise its level to meet the ever-increasing requirements of education.

As for hypotheses testing, there is a statistically significant relationship at the level of significance ($\alpha \geq 0.05$) between the factors of the Education Management Information System (EMIS) and the initiative and development of the educational system in the Agency (UNRWA) in Lebanon. The effect of information efficiency, system efficiency, and technical means efficiency on the dependent variable, as opposed to the weak effect of service efficiency on it.

Moreover, there are no statistically significant differences at the level of significance ($0.05 \geq \alpha$)

between the respondents' responses about the development of the educational system among UNRWA school teachers due to the following variables: sex, age, educational qualification, and number of years of service.

Based on the previously presented results of the study, a set of recommendations can be made:

- Involving school teachers in designing, modifying, and developing the system, or taking into account at least their observations and comments regarding the system.
- Conducting a continuous and periodic evaluation of the system to produce the best possible results
- Training teachers who use the system to use its most accurate parts to raise ways to benefit from it in developing their educational performance.
- Training teachers of schools with a need to use the system with its various and continuous modifications and updates.
- Empowering teachers technically to overcome all obstacles that they may face
- Permanent monitoring to ensure the availability of all necessary equipment in schools.
- Developing the program using artificial intelligence and allowing parents to see and follow the achievement and behavioral levels of their children to develop their school performance, and overcome the poor follow-up of absence and attendance and the prevalence of school dropouts.

VI. Conclusion

The goal of this study is to investigate the impact of education management information system variables on the educational system in UNRWA schools in Lebanon, such as system efficiency, service efficiency, information efficiency, and technical efficiency. The authors used an analytical-descriptive strategy to collect data by producing a questionnaire in Google Forms and distributing it to the study sample participants via the WhatsApp application. 1440 professional female and male teachers who showed expertise in the 2022 academic year participated in the poll. The author, on the other hand, only collected 128 questionnaires from teachers, which were then studied and analyzed using the SPSS application. The findings of this investigation reveal that teachers are generally aware of the components of the information management system. The studies also demonstrated a statistically significant relationship between educational system development and education information management system parameters. In addition, the authors proposed some

recommendations to increase the system's performance and raise the educational level of the study community.

References

- [1] Abu-Ghaida, D., & Silva, K. (2021). Educating the Forcibly Displaced: Key Challenges and Opportunities. *UNHCR*, March.
- [2] Akter, S., Michael, K., Uddin, M. R., McCarthy, G., & Rahman, M. (2022). Transforming business using digital innovations: The application of AI, blockchain, cloud and data analytics. *Annals of Operations Research*, 1-33.
- [3] Anderson, A., Magee, A., & Nicolai, S. (2020). Strengthening coordinated education planning and response in crises.
- [4] Baak, M., Koopman, R., Snoek, H., & Klous, S. (2020). A new correlation coefficient between categorical, ordinal and interval variables with Pearson characteristics. *Computational Statistics & Data Analysis*, 152, 107043.
- [5] Benbasat, I., Goldstein, D. K., & Mead, M. (1987). The case research strategy in studies of information systems. *MIS Quarterly*, 369-386.
- [6] Byun, J., Sung, T. E., & Park, H. W. (2018). Technological innovation strategy: how do technology life cycles change by technological area. *Technology Analysis & Strategic Management*, 30(1), 98-112.
- [7] Chu, S. K. W., Reynolds, R. B., Tavares, N. J., Notari, M., Lee, C. W. Y., Chu, S. K. W., ... & Lee, C. W. Y. (2017). Twenty-first century skills and global education roadmaps. *21st century skills development through inquiry-based learning: From theory to practice*, 17-32.
- [8] Dwivedi, Y. K., Hughes, D. L., Coombs, C., Constantiou, I., Duan, Y., Edwards, J. S., ... & Upadhyay, N. (2020). Impact of COVID-19 pandemic on information management research and practice: Transforming education, work and life. *International journal of information management*, 55, 102211.
- [9] El Ahmad, A. H., & Kawtharani, A. M. (2022). Inclusive Education at UNRWA in Lebanon: A Case Study of a Lower Elementary School. *International Journal of Social Sciences & Educational Studies*, 9(1), 18.
- [10] Herold, B. (2016). Technology in education: An overview. *Education Week*, 20(7), 129-141.
- [11] Huang, P. (2022, July). Intelligent Questionnaire Processing Information System for Precise Employment in Colleges based on Intelligent Interactive Testing Algorithm. In *2022 International Conference on Inventive Computation Technologies (ICICT)* (pp. 1075-1079). IEEE.
- [12] Ismagilova, E., Hughes, L., Dwivedi, Y. K., & Raman, K. R. (2019). Smart cities: Advances in research—An information systems perspective. *International journal of information management*, 47, 88-100.
- [13] Jebb, A. T., Ng, V., & Tay, L. (2021). A review of key Likert scale development advances: 1995–2019. *Frontiers in Psychology*, 12, 637547.
- [14] Karakose, T., Polat, H., & Papadakis, S. (2021). Examining teachers' perspectives on school principals' digital leadership roles and technology capabilities during the COVID-19 pandemic. *Sustainability*, 13(23), 13448.
- [15] Laudon, C. K., & Laudon, P. J. (2013). *Essentials of management information systems*. Pearson Education, Inc.
- [16] Michael, K., & Hatuel-Radoshitzky, M. (2020). Seventy Years to UNRWA—Time for Structural and Functional Reforms. *INSS Insight Report*, (204).
- [17] Moghli, M. A., & Shuayb, M. (2020). Education under Covid-19 lockdown: Reflections from teachers, students & parents. *Social Sciences and Humanities Research Council of Canada: Ottawa, ON, Canada*.
- [18] Nikou, S., & Aavakare, M. (2021). An assessment of the interplay between literacy and digital Technology in Higher Education. *Education and Information Technologies*, 26(4), 3893-3915.
- [19] Okagbue, H. I., Oguntunde, P. E., Obasi, E. C., & Akhmetshin, E. M. (2021). Trends and usage pattern of SPSS and Minitab Software in Scientific research. In *Journal of Physics: Conference Series* (Vol. 1734, No. 1, p. 012017). IOP Publishing.
- [20] Rakic, S., Tasic, N., Marjanovic, U., Softic, S., Lüftenegger, E., & Turcin, I. (2020). Student Performance on an E-Learning Platform: Mixed Method Approach. *International Journal of Emerging Technologies in Learning*, 15(2).
- [21] Rayward, W. B. (2014). Information revolutions, the information society, and the future of the history of information science. *Library Trends*, 62(3), 681-713.

- [22] Rossi, M., Mueller-Bloch, C., Thatcher, J. B., & Beck, R. (2019). Blockchain research in information systems: Current trends and an inclusive future research agenda. *Journal of the Association for Information Systems*, 20(9), 14.
- [23] Salman, H. A., bin Ismail, S. M., & Nordin, R. (2022). A Critical Appraisal of the UNRWA-USA Framework for Cooperation (2021-2022) regarding Palestinian Refugees. *IIUMLJ*, 30, 75.
- [24] Tworek, K. (2018). Information systems reliability in the context of higher education institutions. In *EDULEARN18 Proceedings* (pp. 9419-9428). IATED.
- [25] UNRWA. (2022). <https://www.unrwa.org/ar/what-we-do>. Last Accessed: May 18, 2023.
- [26] Watkins, M. W. (2021). *A step-by-step guide to exploratory factor analysis with SPSS*. Routledge.

